AMENDMENTS TO THE CLAIMS

1. (Currently Amended) ~~Apparatus~~ An apparatus for closure of a physical anomaly ~~having a lumen~~ in a vascular wall, the apparatus comprising:

a closure body,

said closure body made of a shape memory polymer (SMP) foam,

said shape memory polymer (SMP) foam having at least one hard segment and one soft segment wherein said hard segment is formed at a temperature above T_{trans} and said soft segment is formed at a temperature below T_{trans}, said shape memory polymer (SMP) foam being formed into a primary shape, compressed into a reduced secondary stable shape, then controllably actuated so that it recovers its primary shape, and

a delivery device adapted to received said closure body made of a shape memory polymer (SMP) foam with said shape memory polymer (SMP) foam being compressed into said reduced secondary stable shape in said delivery device, said delivery device adapted to deploy said closure body into the physical anomaly in the vascular wall,

wherein said shape memory polymer (SMP) foam of ~~provides~~ said closure body ~~with~~ in said reduced secondary stable shape is configured for positioning said closure body within ~~said lumen~~ the physical anomaly in the vascular wall, and

wherein said shape memory polymer (SMP) foam is controllably actuated so that it recovers its primary shape with said primary shape configured to close said anomaly.

2. (Cancelled)

3. (Cancelled)

4. (Currently Amended) The apparatus of claim 1 ~~wherein~~ including actuator means for controllably actuating said shape memory polymer (SMP) ~~comprises a shape memory polymer~~ foam having at least one hard segment ~~and one soft segment~~ wherein said hard segment is formed at a temperature above T_{trans} by changing said temperature above T_{trans} ~~and said soft segment is formed at a temperature below T_{trans}~~.

5. (Currently Amended) The apparatus of claim 1 wherein said ~~closure body comprises a shape memory material having a substantially spherical shape~~ delivery device includes a tube and a plunger in said tube that deploys said closure body into the physical anomaly in the vascular wall.

6. (Currently Amended) The apparatus of claim 1 wherein said ~~closure body comprises a shape memory material having a substantially barbell shape~~ delivery device includes a tube, a plunger in said tube that deploys said closure body into the physical anomaly in the vascular wall, and a restraint tube for backbleed measurement.

7. (Currently Amended) The apparatus of claim 1 wherein said closure body comprises ~~a shape memory material having a substantially band shape~~ biodegradable polymers.

8. (Currently Amended) The apparatus of claim 1 wherein said closure body comprises ~~a shape memory material having a substantially double truncated cone shape~~ poly(caprolactone), poly(lactide), poly(glycolide), poly(dioxane), or amino acid based isocyanate material biodegradable polymers.

9. (Currently Amended) The apparatus of claim 1 wherein said closure body comprises a shape memory material having a substantially flowing fluid shape incorporate biodegradable materials, such as polyhydroxy acids, polyanhydrides, polyesters, and polyorthoester biodegradable polymers.

10. (Currently Amended) The apparatus of claim 1 wherein said closure body is biodegradable with biodegradable linkages comprising ester, amide, anhdride, carbonate, or orthoester linkages.

11. (Currently Amended) The apparatus of claim 1 ~~further comprising~~ wherein said delivery device is a delivery catheter.

12. (Currently Amended) The apparatus of claim 1 ~~further comprising~~ wherein said delivery device includes a plunger actuator.

13. (Currently Amended) The apparatus of claim 1 ~~further comprising~~ wherein said delivery device includes a backbleed tube.

14. (Currently Amended) The apparatus of claim 1 ~~further comprising~~ wherein said delivery device includes a plunger actuator and a delivery catheter.

15. (Currently Amended) The apparatus of claim 1 ~~further comprising~~ wherein said delivery device includes a delivery catheter, a plunger actuator, and a restraint tube.

16. (Currently Amended) The apparatus of claim 1 wherein the physical anomaly is ~~chosen from the group consisting of~~ an arteriotomy puncture ~~sites, septal defects, patent ductus, and combinations thereof~~ site.

17. (Currently Amended) The apparatus of claim 1 ~~further comprising an~~ including actuator means for controllably actuating said shape memory polymer (SMP) foam, said actuator means configured to transition ~~the~~ said closure body from ~~the~~ said reduced secondary shape to ~~the~~ said primary shape by changing said temperature above T_{trans} by heating.

18. (Currently Amended) The apparatus of claim 17, including actuator means configured to transition said closure body from said reduced secondary shape to said primary shape and wherein ~~the~~ said actuator means is chosen from the group consisting of external sheaths, removable sheaths, constraint sheaths,

light, coherent light, heat, externally applied energy, plungers, RF, induction, stress, and combinations thereof.

19. (Currently Amended) A method of closing a physical anomaly ~~having a passage~~ in a vascular wall, the method comprising:

providing a closure body made of a shape memory polymer (SMP) foam, said shape memory polymer (SMP) foam having at least one hard segment and one soft segment wherein said hard segment is formed at a temperature above T_{trans} and said soft segment is formed at a temperature below T_{trans},, said shape memory polymer (SMP) foam capable of being formed into a primary shape, compressed into a reduced secondary stable shape, then controllably actuated so that it recovers its primary shape,

positioning said closure body made of said shape memory polymer (SMP) foam in ~~the passage of~~ the physical anomaly in the vascular wall when said closure body is ~~disposed~~ in said reduced secondary stable shape, and

transitioning said closure body made of a shape memory polymer (SMP) foam to said primary shape within the ~~passage~~ physical anomaly in the vascular wall by changing said temperature above T_{trans}, thereby closing said physical anomaly.

20. (Currently Amended) The method of claim 19 wherein said step of transitioning the closure body ~~further~~ comprises transitioning the closure body with an actuator system that uses light, coherent light, or heat.

21. (Currently Amended) The method of claim 20, wherein said step of transitioning the closure body~~, with an actuator further~~ comprises transitioning the closure body with an actuator system chosen from the group consisting of external sheaths, removable sheaths, constraint sheaths, light, coherent light, heat, externally applied energy, plungers, RF, induction, stress, and combinations thereof.

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Currently Amended) The method of claim 19 wherein ~~transitioning~~ said step of positioning said closure body made of said shape memory polymer (SMP) foam in the physical anomaly in the vascular wall further comprises ~~transitioning the~~ positioning said closure body made of said shape memory polymer (SMP) foam in the physical anomaly in the vascular wall with a plunger ~~actuator~~.

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Currently Amended) The method of claim 19 wherein the physical anomaly is chosen from the group consisting of arteriotomy puncture sites, septal defects, patent ductus, and combinations thereof and wherein said step of positioning said closure body made of said shape memory polymer (SMP) foam in the physical anomaly in the vascular wall further comprises positioning said closure body made of said shape memory polymer (SMP) foam in said arteriotomy puncture sites, septal defects, patent ductus, or combinations thereof.

32. (Currently Amended) A system for the closure of a physical anomaly ~~having a passage~~ in a vascular wall, the system comprising:

a closure body for closing the anomaly,

said closure body made of a shape memory polymer (SMP) foam,

said shape memory polymer (SMP) foam having at least one hard segment and one soft segment wherein said hard segment is formed at a temperature above T_{trans} and said soft segment is formed at a temperature below T_{trans}, said shape memory polymer (SMP) foam being formed into a primary shape, compressed into a reduced secondary stable shape, then controllably actuated so that it recovers its primary shape,

a delivery device adapted to received said closure body made of a shape memory polymer (SMP) foam with said shape memory polymer (SMP) foam being compressed into said reduced secondary stable shape, said delivery device adapted to deploy said closure body into the physical anomaly in the vascular wall,

said shape memory polymer (SMP) foam reduced secondary stable shape configured for positioning said closure body in ~~the passage of~~ the physical anomaly in the vascular wall,

means for positioning said closure body in ~~the passage of~~ the physical anomaly in the vascular wall when said closure body is in said reduced secondary stable shape; and

means for transitioning said closure body to said primary shape for closing said anomaly.

33. (Cancelled)

34. (Currently Amended) The system for the closure of a physical anomaly of claim 32 wherein said ~~closure body comprises a~~ shape memory polymer (SMP) foam of said closure body with a secondary shape for being positioned in ~~the passage of~~ the physical anomaly and a larger primary shape for closing said anomaly, said shape memory polymer foam having at least one hard segment and one soft segment wherein said hard segment is formed at a temperature above T_{trans} and said soft segment is formed at a temperature below T_{trans} and

wherein said means for transitioning said closure body changes said temperature above T_{trans} by heating.

35. (Currently Amended) The system of claim 32 wherein ~~the physical anomaly is chosen from the group consisting of arteriotomy puncture sites, septal defects, patent ductus, and combinations thereof~~ said means for positioning said closure body in ~~the passage of~~ the physical anomaly in the vascular wall is a delivery catheter.